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QUESTION:-

Part1: Write a Java program that declares two arrays named ‘even’ and ‘odd’. Accept numbers from the user and move them to respective arrays depending on whether they are even or odd.

Part2: Implement a java function that finds 2 neighboring numbers in an array with the smallest distance to each. The function should return the index of the 1st number.

Part 3: Write a Java program to convert an array into ArrayList and vice versa.

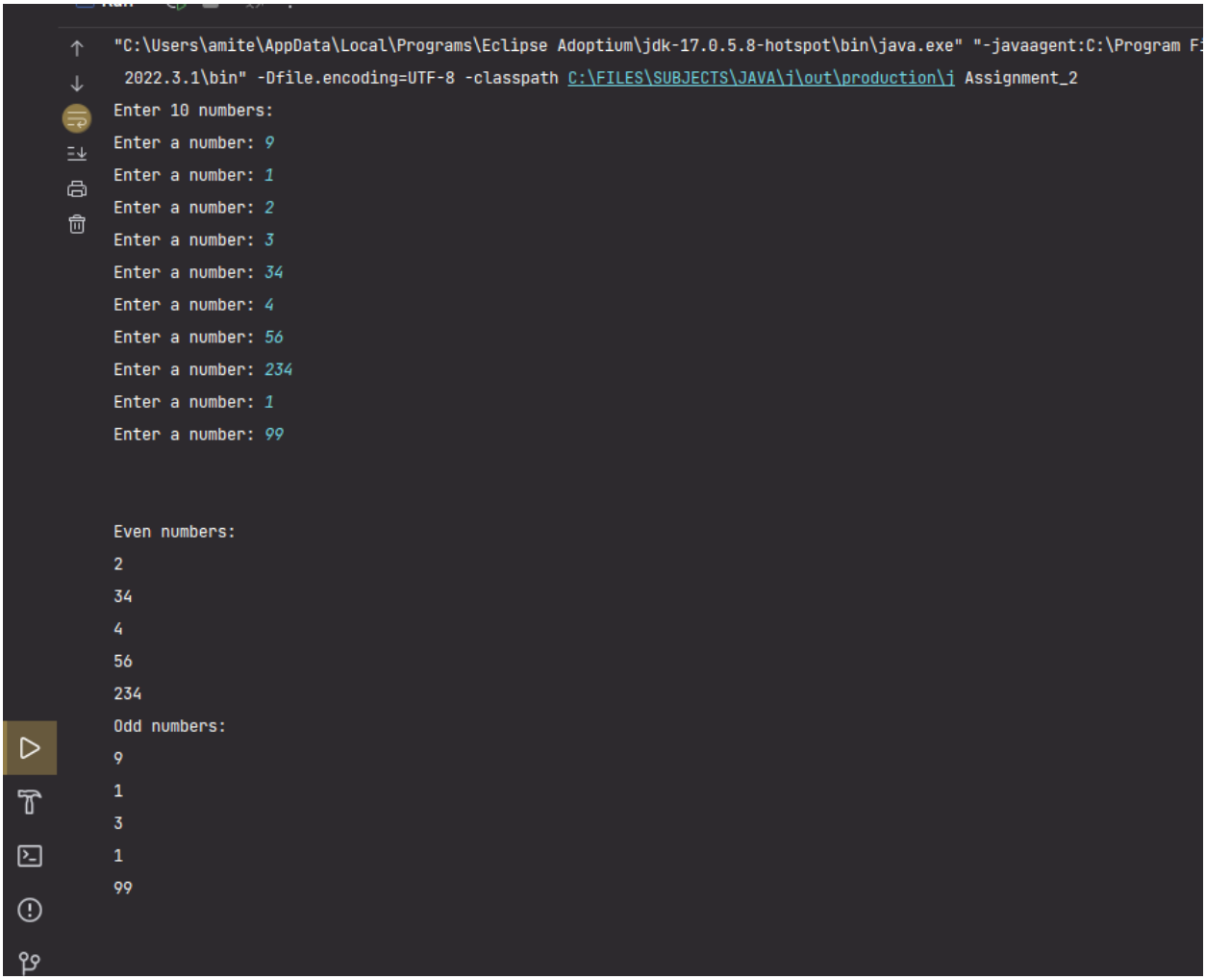
CODE:-

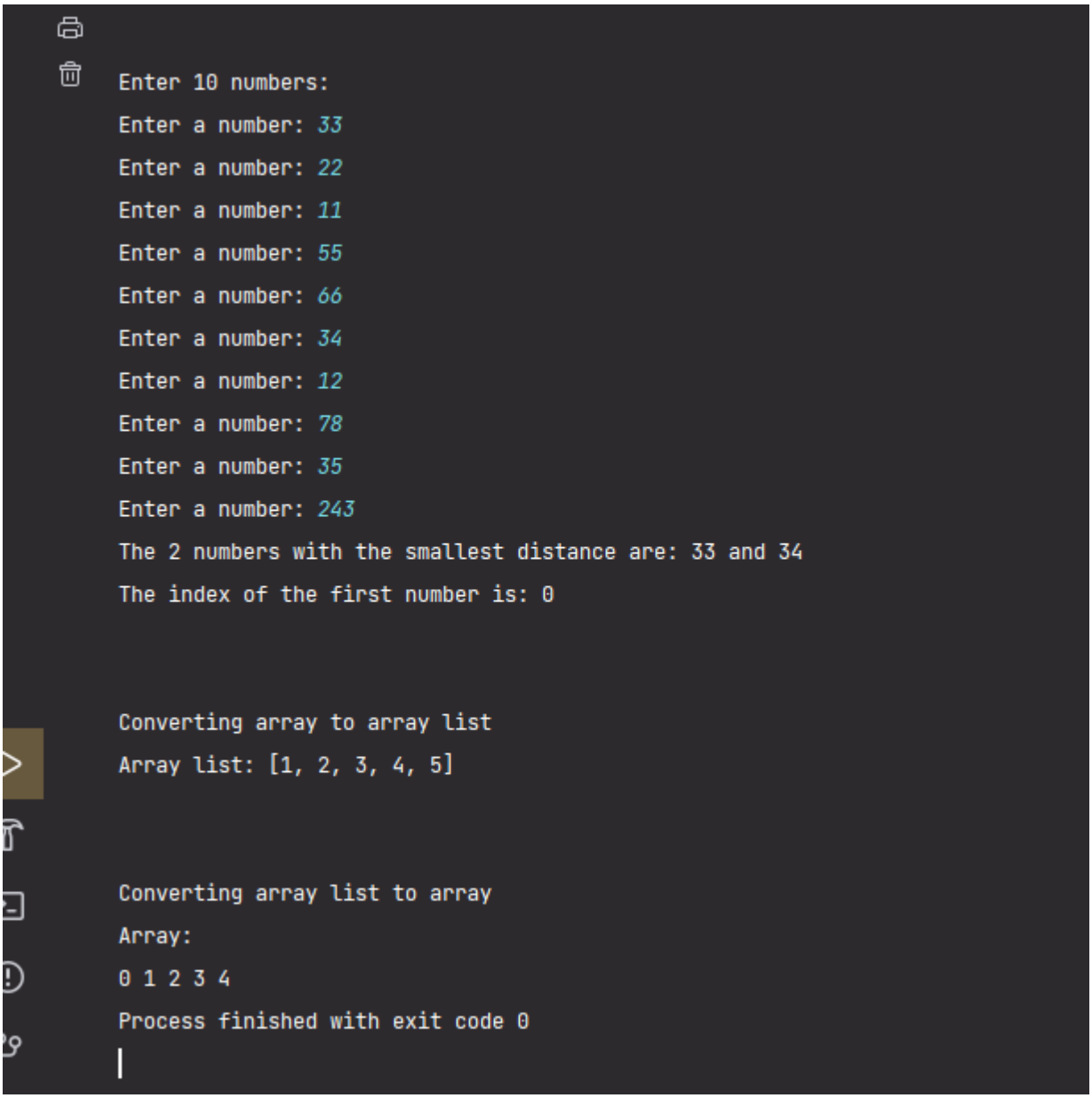
```
import java.util.Scanner;
import java.util.ArrayList;
import java.util.*;
//importing necessary modeules for execution
public class Assignment_2{
    public static void main(String arg[]) {
        even_odd obj1 = new even_odd();// creating objects for 1st function of
even odd program
        obj1.accept();
        obj1.display();
        distance obj2 = new distance();
        obj2.smallest_distance();
        convert obj3 = new convert();
        obj3.array_list();
        obj3.array_list_2();
    }
}

class even_odd {
    int even[] = new int[10];
    int odd[] = new int[10];
    int i, j, k;

    void accept()
    {
        Scanner obj = new Scanner(System.in);
        System.out.println("Enter 10 numbers: ");//TAKING INPUT FROM USER
        for(i = 0; i < 10; i++)
        {
            System.out.print("Enter a number: ");
            int a = obj.nextInt();
            if(a % 2 == 0) // EVEN value
```

```
            {
                even[j] = a;
                j++;
            }
            else
            {
                odd[k] = a;
                 k++;
            }
        }
        System.out.println("\n");
    }

    void display() {
        System.out.println("Even numbers: ");
        for (i = 0; i < j; i++) {
            System.out.println(even[i]);
        }
        System.out.println("Odd numbers: ");
        for (i = 0; i < k; i++) {
            System.out.println(odd[i]);
        }
        System.out.println("\n");
    }
}

class distance {
    void smallest_distance() {
        Scanner obj = new Scanner(System.in);
        int a[] = new int[10];
        System.out.println("Enter 10 numbers: ");
        for (int i = 0; i < 10; i++) {
            System.out.print("Enter a number: ");
            a[i] = obj.nextInt();
        }
        int i, j, min = 1000, index1 = 0, index2 = 0;
        for (i = 0; i < 10; i++) {
            for (j = i + 1; j < 10; j++) {
                if (Math.abs(a[i] - a[j]) < min) {
                    min = Math.abs(a[i] - a[j]);
                    index1 = i;
                    index2 = j;
                }
            }
        }
        System.out.println("The 2 numbers with the smallest distance are: " +
a[index1] + " and " + a[index2]);
        System.out.println("The index of the first number is: " + index1);
        System.out.println("\n");
    }
}

class convert {
    void array_list()//Converting array to array list
    {
        System.out.println("Converting array to array list");
        int a[] = {1, 2, 3, 4, 5};
```

```
        ArrayList<Integer> ar = new ArrayList<Integer>();
        for(int i = 0; i < a.length; i++)
        {
            ar.add(a[i]);
        }
        System.out.println("Array list: "+ ar);
        System.out.println("\n");

    }

    void array_list_2() {
        // array list into array
        ArrayList<Integer> ar = new ArrayList<Integer>();
        for (int i = 0; i < 5; i++) {
            ar.add(i);
        }
        int a[] = new int[ar.size()];
        for (int i = 0; i < ar.size(); i++) {
            a[i] = ar.get(i);
        }
        System.out.println("Converting array list to array");
        System.out.println("Array: ");
        for (int i = 0; i < a.length; i++) {
            System.out.print(a[i] + " ");
        }
    }
}
```

OUTPUT IMAGES :-


"C:\Users\amite\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.5.8-hotspot\bin\java.exe" "-javaagent:C:\Program Fi
2022.3.1\bin" -Dfile.encoding=UTF-8 -classpath C:\FILES\SUBJECTS\JAVA\j\out\production\j Assignment_2
Enter 10 numbers:
Enter a number: 9
Enter a number: 1
Enter a number: 2
Enter a number: 3
Enter a number: 34
Enter a number: 4
Enter a number: 56
Enter a number: 234
Enter a number: 1
Enter a number: 99
Even numbers:
2
34
4
56
234
Odd numbers:
9
1
3
1
99


Enter 10 numbers:
Enter a number: 33
Enter a number: 22
Enter a number: 11
Enter a number: 55
Enter a number: 66
Enter a number: 34
Enter a number: 12
Enter a number: 78
Enter a number: 35
Enter a number: 243
The 2 numbers with the smallest distance are: 33 and 34
The index of the first number is: 0
Converting array to array list
Array list: [1, 2, 3, 4, 5]
Converting array list to array
Array:
0 1 2 3 4
Process finished with exit code 0